KDD 2016 Tutorials

CNTK—Microsoft's open-source deep-learning toolkit

Frank Seide / Microsoft

Amit Agarwal / Microsoft

Tutorials

Train neural networks like Microsoft product groups! This talk will introduce the Computational Network Toolkit, or CNTK, Microsoft's scalable open-source deep-learning toolkit for Windows and Linux. CNTK is a powerful computation-graph based deep-learning toolkit for training and evaluating deep neural networks. Microsoft product groups use CNTK, for example to create the Cortana speech models and web ranking.

This tutorial is targeted at current or future deep-learning practitioners looking for a tool that is easy to use yet efficient and scalable across multi-machine GPU clusters for real-world workloads.

The tutorial assumes basic knowledge of deep learning. Participants will get to understand CNTK's core concepts and usage, and practice to run neural-network trainings with CNTK for image recognition and text processing. The tutorial will be a starting point for solving your own real-world deep-learning task with CNTK.

To run the examples, a laptop with Windows 7+ or Linux is required, and a CUDA-capable GPU is recommended.

Please see here for download/installation instructions:
https://github.com/Microsoft/CNTK/wiki/KDD-2016-Tutorial

CNTK supports feed-forward, convolutional, and recurrent networks for speech, image, and text workloads, also in combination. Popular network types are supported either natively (convolution) or can be described as a CNTK configuration (LSTM, sequence-to-sequence). CNTK scales to multiple GPU servers and is designed around efficiency. This tutorial will give an overview of CNTK's general architecture and describe the specific methods and algorithms used for automatic differentiation, recurrent-loop inference and execution, memory sharing, on-the-fly randomization of large corpora, and multi-server parallelization. We will then show how typical uses looks like for relevant tasks like image recognition, sequence-to-sequence modeling, and speech recognition.

ACM Code of Conduct